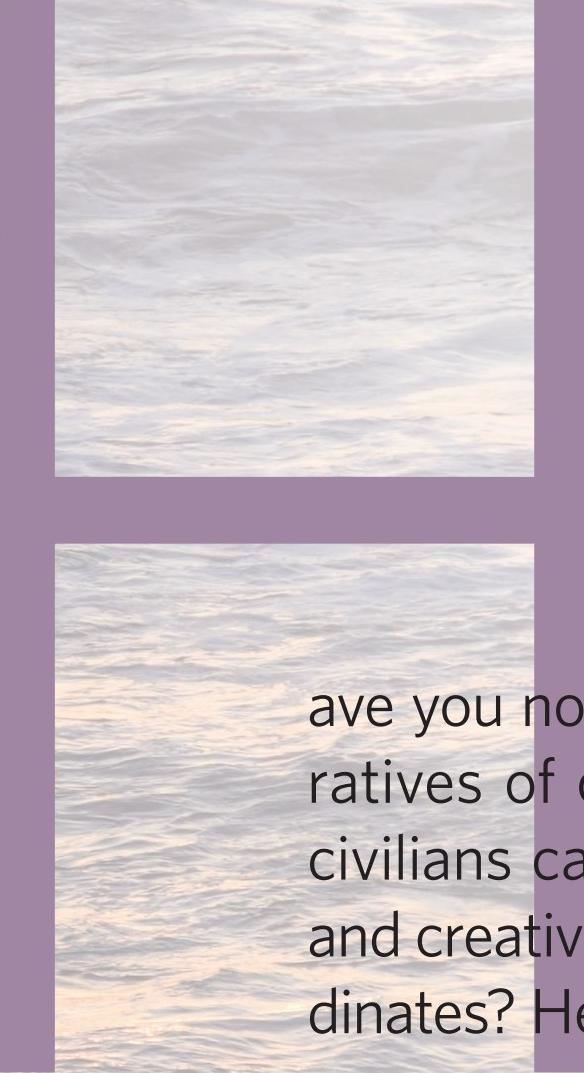




Learning to Swim in the Ocean

Creativity as a Zone of Analogy

Christopher R. Paparone



ave you noticed the dominant narratives of our senior officers and civilians calling for greater critical and creative thinking in their subordinates? Here are a few examples:

- “For the kinds of challenges America faces and will face, the armed forces will need principled, creative, reform-minded leaders, men and women who ... want to do something, not be somebody.” (Secretary of Defense Robert Gates, remarks at Maxwell-Gunter Air Force Base, Montgomery, Ala., April 2008)
- “... We’re doing things that we had not planned on doing, had not trained to do. ... They’re very adaptive, very creative, very innovative. And they do it unbelievably well.” (Chairman of the Joint Chiefs of Staff Adm. Mike Mullen commenting on the National Guard, February 2010)

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- “‘Over-proceduralization’ inhibits the commander and staff’s critical thinking and creativity, which are essential to finding a timely solution to complex problems.” (U.S. Joint Forces Command Commander Gen. J. N. Mattis, Vision of a Joint Approach to Operational Design, October 2009)

Is creativity strictly an unexplainable, mysterious process? Can there be a science of creative thinking?

Indeed, faced with the reconceptualizations of postmodern war and an array of emergent wily, adaptive enemies, defense professionals have been paying far more attention to the value of creative thinking. The hope is that we will be able to outthink our foes and remain more competitive in the globally interconnected environment. Yet what do we know about creative thinking? Where does creativity come from? Is creativity strictly an unexplainable, mysterious process? Can we critically examine how imagination works? Can there be a science of creative thinking?

Using Past Meanings for Future Concepts

In his book *The Logic of Scientific Discovery*, Karl Popper, a social and political philosopher of the 20th century, said, "...there is no such thing as a logical method of having new ideas," claiming that a mysterious form of irrationality is at work. On the other hand, some who have studied in the field of cognitive linguistics (the science of how language is conceptually constructed) have disagreed. One such pioneering philosopher-scientist was Donald A. Schön. In his 1963 book *Displacement of Concepts*, he developed a theory of metaphoric reasoning—how humans create new meanings from old. Ironically, Schön had to employ metaphoric reasoning ("giving a thing a name that belongs to something else") to explain how metaphor works; he used the biological theory of evolution, substituting a human learning process for natural selection. Here is an excerpt from his book in which Schön imaginatively uses a learning-to-swim metaphor to describe the creative process in the evolution of meaning:

A child who has learned to swim in a pool learns for the first time to swim in the ocean. He has material to work with, patterns of expectation and response. But as he first encounters waves and the buoyancy of salt water, everything he has learned to do must shift. He must learn and adapt, but he does not start from scratch. His old way of swimming is displaced to the new situation.

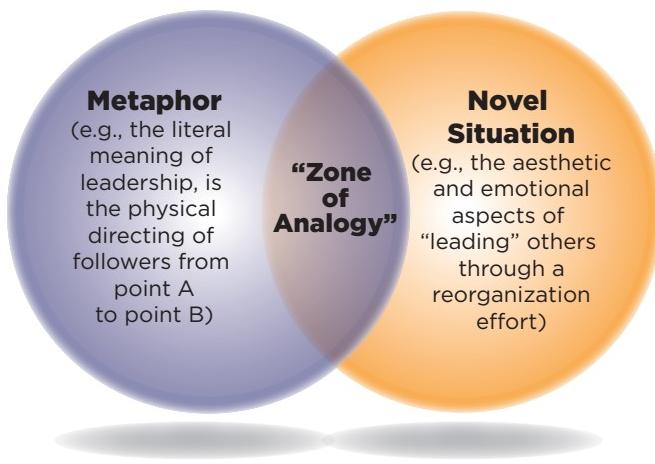
The point is that when we are faced with novel, perplexing situations, we can rely only on past meanings to make sense of them (like Schön tried to communicate with his child swimmer metaphor). As we err (i.e., we discover that these old meanings do not work well in explaining the way the world appears to us now), we reinterpret those meanings into something new and tentative. As time goes on, we elaborate on this temporary use of borrowed meanings and eventually adopt them into our more permanently accepted language that reflects the way things are. We tend to lose touch with old meanings and the reconceptualizations become part of our "normal" language (hence, the originating terms become "dead metaphors")—Schön calls this process "extension and replacement."

Metaphor and Analogies in Leadership Terminology

Schön brings his theory to light in his example of how the Western theory of leadership evolved. In *Displacement of Concepts*, Schön argues that the idea of leadership was "displaced from theories of travel, passage, or directed movement from one place to another." Note how transpositions of the travel concept take us to conceptually link the following concrete intimations to leadership: go first, guide, path, direct, indirect, follow, explore, and so on. Conceptual extensions may include answering these questions: Is it better for a leader to *sail* the organization or *powerboat* the organization on its *journey*? How can we change the *direction* of the organization? What is the strategic *end-state*? Can we publish a strategic *road map* to get to our *destination*? Should senior leaders have a *vision* further out than we *followers* can see (to the point that they have *super-vision*)? Eventually, those questions became hypotheses that theorists have used to replace the original, concrete idea of leadership as a function of travel. Today, the concept of leadership continues to be extended and replaced in very elaborate ways.

Schön warns us that analogy and metaphor are not synonymous terms. We can become too complacent in using only the analogous portion of metaphors (what I call the "zone of analogy"). Critical reflection about our use of metaphor is an important check on the efficacy of new concepts based on old ones. Using analogous meaning to describe a novel situation will always be underdeveloped because even the most elaborate metaphor contains irrelevant meaning as well as relevant (analogous) meaning. In other words, we tend to focus our attention on the metaphoric content that provides analogous understanding and miss the incompleteness of larger metaphoric frame. For example, when Western theorists originally conceptualized leadership as a theory of travel, they probably missed the important contextual meanings (aesthetic and emotional) of human relationships that we experience in such things as reorganizations (see the figure on the following page). Leveraging and extending the zone of analogy is a powerful way to communicate about novel experiences (past, present, or those envisioned for the future), but, according to Schön, critical reflection is about

Zone of Analogy



paying “attention on the nature of the relation between the old concept and the new situation...” (i.e., being mindful of the inadequacies of metaphoric reasoning).

“Leadership” has been reconceptualized as something greater than the literal meaning of the term. According to Schön, the term has evolved beyond the physical aspects of its original meaning associated with travel. The zone of analogy represents the sameness of meaning that exists with respect to the original meaning. Facing a novel situation requires the creative extension of old meaning and the replacement with new meaning.

Using Metaphors and Analogies in DoD

This view of continuously reconceptualizing the world should give us pause to think both creatively and critically. Many of our professional knowledge structures are temporary elaborations and replacements of older structures. When new sciences emerge, such as those based in complexity and chaos theories, we can re-conceive and replace old constructions with new imaginations. For example, when 19th century war theorist Carl von Clausewitz introduced the metaphors of friction and center of gravity in his book *On War*, he was limited in his ability to extend and replace the metaphors drawing on the state of Newtonian science in his time. Clausewitz extended his descriptions of friction in war to his readers as images of trying to walk through water. Since then, many military theorists have published on the concept of friction, extending and replacing his original metaphor with new elaborations. Like Clausewitz, modern war theorists draw upon the sciences (and humanities and fine arts) of their time. Compare, for example, Clausewitz’s Newtonian metaphors to the post-Newtonian descriptions borrowed from 20th century complexity science and its derivative biological theory of self-organizing systems (like swarming bees). In the latest version of the Capstone Concept for Joint Operations, signed by current Chairman of the Joint Chiefs of Staff Adm. Mike Mullen, take note of

this extended, post-Newtonian science metaphor based on swarm intelligence behavior of bees:

Based on an underlying modular structure down to small-unit levels, joint forces will routinely and smoothly aggregate and disaggregate into temporary joint formations of different sizes depending on the nature and scale of operations.

There are other recent examples in the Department of Defense of the creative use of metaphoric extensions and replacements. Former Secretary of Defense Donald Rumsfeld frequently used the term “transformation” from a biological (complex adaptive systems) metaphor to describe the adaptive nature of change necessary for the future joint force. Current Secretary of Defense Robert Gates has referred to physical, sense-of-touch metaphors to describe a needed refocusing of our military capabilities, such as used in a November 2007 speech at Kansas State University: “... I am here to make the case for strengthening our capacity to use ‘soft’ power and for better integrating it with ‘hard’ power.” In 2008, the Army published its new operations doctrine by adapting the term “full spectrum” (borrowed from the science of light) to indicate its multifaceted participation in the conduct of complex operations.

There is no doubt of the attention paid by senior leaders in the United States to critical and creative thinking. Defense professionals interested in creative thinking should be aware of the evolutionary processes of metaphoric reasoning. According to Schön’s descriptive theory, the professional body of knowledge we share in the defense community can be imaginatively manipulated and purposefully reconceptualized when discovered to be unsuitable for making sense of novel, perplexing situations. In fact, Schön postulated that all language is metaphorical; hence, it exists in a constant state of flux and creative renewal that will never be complete. How purposeful and effective that renewal will be depends upon professionals being critically mindful of this evolutionary process of creative thinking. Indeed, Schön cautioned professionals to reflect as if “removing the film of obviousness that covers our way of looking at the world.” In my terms, defense professionals must swim beyond the zones of analogy and become more attentive as oceans of new metaphors become available—metaphors that will help deepen our appreciation of the otherwise perplexing novelty of the postmodern world.

If readers are interested in reading more on this topic, I recommend a newly published book by Antoine Bousquet, *The Scientific Way of Warfare: Order and Chaos on the Battlefields of Modernity*. This international relations scholar does a commendable job of applying Schön’s descriptive theory to explaining the evolution of concepts in warfare.

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